RECTANGULAR BLADELETS DISCOVERED AT THE KATRA I SETTLEMENT IN THE VARĖNA DISTRICT OF LITHUANIA: A FUNCTIONAL ANALYSIS

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Abstract

This paper deals with the function of rectangular bladelets produced in experimental studies. The function of the bladelets produced experimentally was compared with that of a similar flint inventory discovered at the Katra I settlement. The experimental studies were carried out in the traceological laboratory at Klaipėda University. The functional dependence of the laboratory-produced flint blades and artefacts found at the Katra I settlement (in the Varėna district) were established with an Olympus SZX16 microscope. The experimental items were used in contact with dry reeds (*Phragmites*). It was established that the functions of the laboratory-produced blades and the ones discovered at the Katra I settlement coincided: most of the artefacts from the Mesolithic and Neolithic periods from the Katra I settlement were used for reed cutting.

Key words: experimental archaeology, microlithic technology, microblades, sickle insert, functional analysis, use-wear traces

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Introduction

The first Mesolithic finds in Lithuania appeared in the collections of amateur archaeologists in the late 19th century. In their papers, the researchers Zygmunt Gloger and Vandalin Szukiewicz discussed artefacts collected by them, including microliths. In 1872, while sailing down the River Nemunas, Zygmunt Gloger made a number of flint finds at Baltašiškė near Druskininkai, including Mesolithic microliths (Gloger 1903, pp.9-13, 36, Fig. 37:1). Over a number of years, Vandalin Szukiewicz managed to build up a large collection of Stone Age artefacts from southern Lithuania. His research results, as well as information about Stone Age campsites, were published more than once (Szukiewicz 1901a; 1901b; 1907; 1910). In his articles, he provided rather detailed descriptions of the ancient settlements and his finds, and tried to interpret them by comparing them with material from neighbouring countries. It is not surprising that the Mesolithic period was not identified in the papers by Szukiewicz: the concept was new, and not yet recognised in Western Europe. Szukiewicz argued in one of his papers that small fine tools that he called geometric should be attributed to arrowheads (Szukiewicz 1907, p.9ff), following the Polish researcher Erzam Majewski (Majewski 1910). In the early 20th century, the microlith artefacts were described by Włodzimierz Antoniewicz. He pointed out that, next to Swiderian culture (Antoniewicz 1930, p.3ff), another Mesolithic culture, Tardenoisian, had existed and manifested itself in southern Lithuania. It was characterised by different types of geometric artefacts, and small, frequently single-ended cores. According to him, the culture reached lakes Svyriai and Narutis (Svir and Naroch in Belarusian), and possibly the River Daugava. As the Tardenoisian campsites were located mainly on lake shores, Antoniewicz related them to fishermen's and hunters' groups. In his opinion, the fact that Late Tardenoisian culture survived until the Neolithic period was proven by the Tardenoisian forms found among the artefacts of the Neolithic settlements (Antoniewicz 1931, p.34). We have to agree with the author, since from the point of view of the information gathered about it in the early 21st century, the microlithic technique also witnesses a wide use in the Neolithic period, especially in the first half. In his 1935 article about the beginning of Lithuania's population, Jonas Puzinas, a pioneer of academic archaeology in Lithuania, dated the Mesolithic period to 10,000 to 3000 BC (Puzinas 1935, p.271). He also pointed out the widespread microlithic flint industry (Puzinas 1935, p.272).

R. Jablonskytė-Rimantienė (also see Jablonskytė-Rimantienė, and Rimantienė) wrote a paper on the Lithuanian Mesolithic period in 1952 (Jablonskytė 1952), which took a critical view of the conclusions of interwar researchers. In her opinion, it was not right to identify cultures by 'typical' artefacts, accounting for just a few of the finds (Jablonskytė 1952, p.42). She argued that, according to the data of the time, the population of Lithuania started in the Mesolithic period, which essentially coincided with the Epipalaeolithic period, in which she also included Swiderian culture. Moreover, she believed that the bone finds were also a legacy of Swiderian culture. Microliths and large stone artefacts appeared in Lithuania only at the end of the Mesolithic period, and spread in the transitional period from the Mesolithic to the Neolithic, and especially in the early Neolithic period (Jablonskytė 1952, p.46ff).

In neighbouring Poland, before the 1960s, the Mesolithic period was discussed using old terms: Tardenois, Swidero-Tardenois and Campigni. It was only in the mid-1960s that the researchers H. Więckowska, M. Marczak and S.K. Kozłowski, when summarising the accumulated materials, identified Komornica, Janislawice and Pienkov cultures, discussed the forms and distribution of microlithic artefacts, and assigned them to individual cultures (Więckowska 1964a; 1964b; Więckowska, Marczak 1965; 1967; Kozłowski 1964; 1965).

New research data on the Mesolithic period that was gathered over the period 1953 to 1965 enabled Jablonskytė-Rimantienė to develop a new periodisation scheme for Lithuania's Mesolithic settlements. The earliest reference to outcomes of the latest research was made in the paper 'Lietuvos mezolito gyvenviečių periodizacija' (Periodisation of Lithuanian Mesolithic Settlements) (Jablonskytė-Rimantienė 1966). She identified three cultural groups of campsites: Eiguliai type, Vilnius type, and microlithic-macrolithic culture (Jablonskytė-Rimantienė 1966, p.75). According to her, the first two types should be dated to the Late Palaeolithic and Early Mesolithic periods, which developed independently in Lithuania, and only merged in the second half of the Mesolithic period. The third, microlithic-macrolithic culture, was attributed to the second half of the Mesolithic period. The periodisation of the camp sites of all three groups was presented on the basis of their topographical location. Studies of Mesolithic settlements were summarised in R. Rimantienė's doctoral thesis, in her monograph 'Lithuanian Palaeolithic and Mesolithic Periods' (Rimantienė 1971), and in a number of articles (Rimantienė 1973; Rimantienė 1974; Rimantienė 1977). In these publications, she presented and developed the final version of her periodisation of Lithuanian Mesolithic settlements. The Mesolithic period was dated to the eighth to the fourth millennium BC. Lithuanian Mesolithic settlements were divided into three groups: Epipalaeolithical, Maglemosian and Microlithic-Macrolithic. Moreover, she argued that the northern part of Lithuania must have belonged to Kunda culture. The Epipalaeolithic campsites reflected the heritage of the merged Palaeolithic cultures in the Pre-Borealic period. Maglemosian culture witnessed people's migration from the southern Baltic coast. Its campsites were dated to approximately the end of the Pre-Borealic and the Borealic periods. Microlithic-Macrolithic culture formed on the basis of three cultural factors: the Palaeolithic Swiderian heritage, macrolithic Maglemosian culture, and the microlithic impact from the south (Rimantienė 1971, p.125). She dated the culture to the Borealic and Atlantic periods.

Later studies of the Mesolithic period were greatly influenced by excavations of Mesolithic and Mesolithic-Neolithic settlements. Excavations were carried out by A. Butrimas around Lake Biržulis, in western Lithuania, at the Biržulis isthmus, Širmė Hill III, Kulnikas, Donkalnis, and other sites (Butrimas 1980; Butrimas 1986; Butrimas 1988). Excavations of Mesolithic and Mesolithic-Neolithic settlements in eastern Lithuania were carried out by A. Girininkas at Pakretuonė IV, the Papiškės IV peatland, Pasieniai I and Šaltaliūnė (Girininkas 1990). Excavations were carried out by E. Šatavičius at Pasieniai I, Sudota I, Verbiškės I and Rėkučiai I (Šatavičius 1992; 1994; 1996b; 1996a; 1998a; 1998b; 1998c). Excavations were carried out by Vygandas Juodagalvis at Varėnė V (Juodagalvis 1998) and Glūkas X (Juodagalvis 2002, pp.197-238). Excavations were carried out by Tomas Ostrauskas at Šaltaliūnė, Dreniai, Varėnė II, Kabeliai II and Kabeliai XXIII (Ostrauskas 1992; 1994; 1996; Ostrauskas, Butrimaitė 1994; Ostrauskas *et al.* 1994; Ostrauskas, Steponaitis 1996). The excavations and the updating of the source base were reflected in publications of recent years, which have presented a slightly different view of current research into Mesolithic settlements in Lithuania, and simultaneously of the view of the process of micro-lithisation that took place in the Mesolithic period. T. Ostrauskas argued that microlithisation was greatly influenced by Stavinoga-Kudlajevka and Komornica cultures; E. Šatavičius pointed out that early microliths, irregular trapezoids, appeared in Late Swiderian culture; and A. Girininkas supported R. Rimantienė's view of Maglemosian culture having had a great impact on the microlithisation process in Lithuania (Ostrauskas 1996; 1998c; 1999a; 1999b; 2000a; 2000b; Šatavičius 1997, p.7ff, 2005, pp.149, 160ff; Brazaitis 1998; Girininkas 2009, pp.92-103; Girininkas 2011, pp.71-89).

The present paper is based on unpublished material from the excavations of the Katra I settlement in the Varėna district in Lithuania, during which a number of microlithic manufactured items were found, including insert bladelets. We compared the excavated artefacts with counterparts manufactured in the Experimental-Traceological Laboratory at Klaipėda University, and tried to establish the functions of the artefacts found in the Katra I settlement.

The bladelet manufacturing technique and its adaptation to the sickle

First of all, a core is prepared: the cortex of a piece of flint is removed with a hammerstone. An appropriate angle of impact is chosen (the angle between the axes of the hammerstone and the flint should be 15^o to 20^o). In a further process, by means of the same principle of percussion, the cortex is removed from the whole piece of flint. Next, the platform is formed by striking a massive flake; this way, the core is prepared. The core may also be made from a large flake; its platform is already formed.

The manufacture of blades and microliths

Hard and semi-hard-hammer percussion techniques are used. Blades are broken off from the platform of the core at an angle of approximately 45^o. The angle may be smaller: it depends on the type of blade wanted. If the blade is to be thin, the angle is smaller and the point of percussion is as near to the edge of the core as possible. When it is to be larger, the point should be closer to the platform centre (Fig. 1a-d). After the blade has been broken off, the two parts are usually truncated: the lower part where the point of percussion was and a bulb of percussion has formed, and the upper part is mainly bent or boasts different forms (pointed, branching out, etc) (Fig. 1e, f). The blades obtained are in a rectangular form. One long side and the two short ones (although not always) are perpendicularly retouched. In this way, a microlith with the function of a bladelet acquires a rectangular, diamond-shaped or other form.

Small bladelets are made from a core obtained from a massive blade by hard or semi-hard-hammer percussion, which later, by means of perpendicular retouch, are formed as rectangular, diamond-shaped or triangular microliths.

The manufacture of a sickle setting and pitch.

A slightly bent branch of a tree is found. Its bark is removed, and it is held in boiling water for approximately two hours. Then the branch is bent and fastened in such a way as to give it the necessary form. Animal horns, ribs or lower jaws can be used instead of a branch in the manufacture of a sickle.

To make pitch, the following materials are necessary: charcoal, resin and fat. The resin is boiled for long enough to become liquid. Powdered charcoal is added to the boiling resin, along with some fat. The pitch produced in this way can be used immediately, or a little later, after it becomes harder.

Microlith embedding

Two wooden and one horn setting in the form of sickles were prepared (Fig. 2a). A groove was made in the centre of the convex side of the blank by means of a flint burin. Pitch was poured into the groove in the setting, and the microliths were embedded in it. Then we waited for the pitch to cool down and hold the embedded microliths firmly, so that the sickle could be used to work with (Fig. 2b). Two sickles were produced in this way.

Testing manufactured sickles.

Common reeds (*Phragmites*) were cut in a flood meadow. Reeds were chosen for testing on the assumption that during the Mesolithic-Neolithic period they were used for roofing. Reeds could also have been used for dishes intended for storing foodstuffs, or as kinds of mat. They could also have been put into footwear, to keep the feet dry and warm. The experimental sickles were used for intensive cutting for 17 to 20 minutes. After the test, the pitch in the grooves was warmed up, and the bladelets were taken out of the setting for micro-analysis (Figs. 3-5).

Recording use-wear on experimental bladelets, and their comparison with identical archaeological artefacts

Flint bladelets from areas 3, 5 and 6 of the Katra I settlement, with similar characteristics to those of the experimental bladelets, were selected:

Specimen No 2868 (These numbers represents inventorial artefact number) (Katra I settlement, area 3, layer 1): 29 millimetres long, nine millimetres wide, two millimetres thick. The flint bladelet was dull grey. There were no traces of retouch. It was made of a blade by truncating the upper and lower parts. After magnifying the artefact eight times with a microscope, use-wear micro-retouch could be seen on one edge of the bladelet, characterised by regular and eventually deeper, chipped spots. The edge of the bladelet was polished and had a bright gloss. These characteristics occurred bifacially (Fig. 6a, b).

Specimen No 3027 (Katra I settlement, area 3, layer 1): 34 millimetres long, nine millimetres wide, 1.9 millimetres thick. The flint was semi-clear, of a grey-brown colour. The edges were not retouched. Part of the bulb of percussion was broken. After magnifying the artefact 15 times with a microscope, larger use-wear micro-retouch could be seen, with more expressive and deeper chipped spots on one edge of the bladelet. The polishing resulted in a bright gloss (Fig. 7a, b).

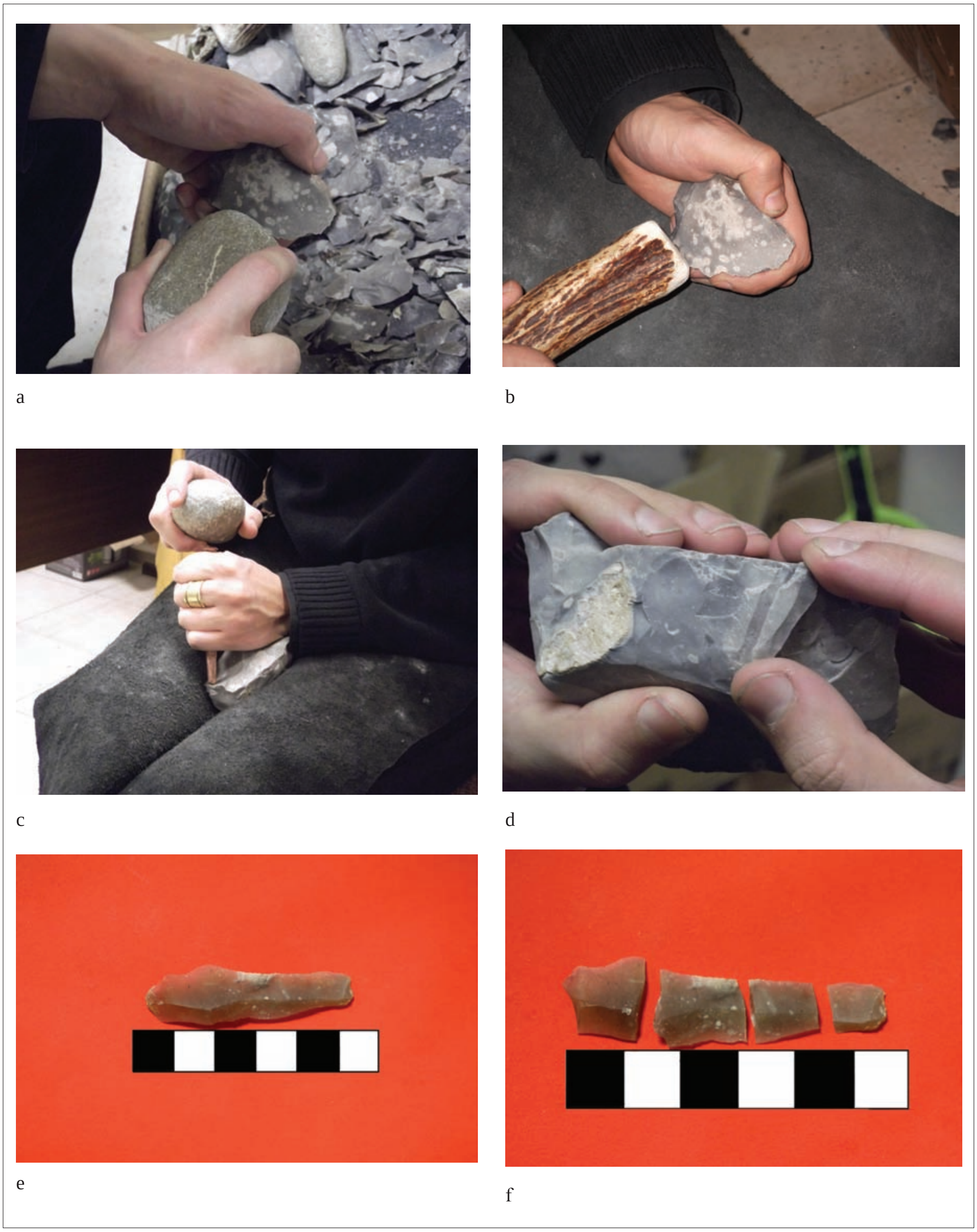


Fig. 1. The hard-hammer flint percussion technique with a stone or horn hammer and semi-hard-hammer percussion with a copper chisel: a-d (photographs by R. Mačiulaitis); e a flint blade (photograph by G. Slah); f truncated microliths (photograph by G. Slah).

a b

Fig. 2. Wooden sickle settings: a (photograph by R. Mačiulaitis); b microliths embedded in a horn handle with tar (photograph by G. Bačanskaitė).

Fig. 3. Cutting common reeds with wooden sickle settings: an experiment carried out by G. Slah and R. Mačiulaitis (photograph by A. Girininkas).

Fig. 4. Cutting reeds with a horn sickle setting: an experiment carried out by G. Slah (photograph by G. Bačanskaitė).

Fig. 5. An experiment carried out by G. Slah in a bog where reeds grow (photograph by G. Bačanskaitė).

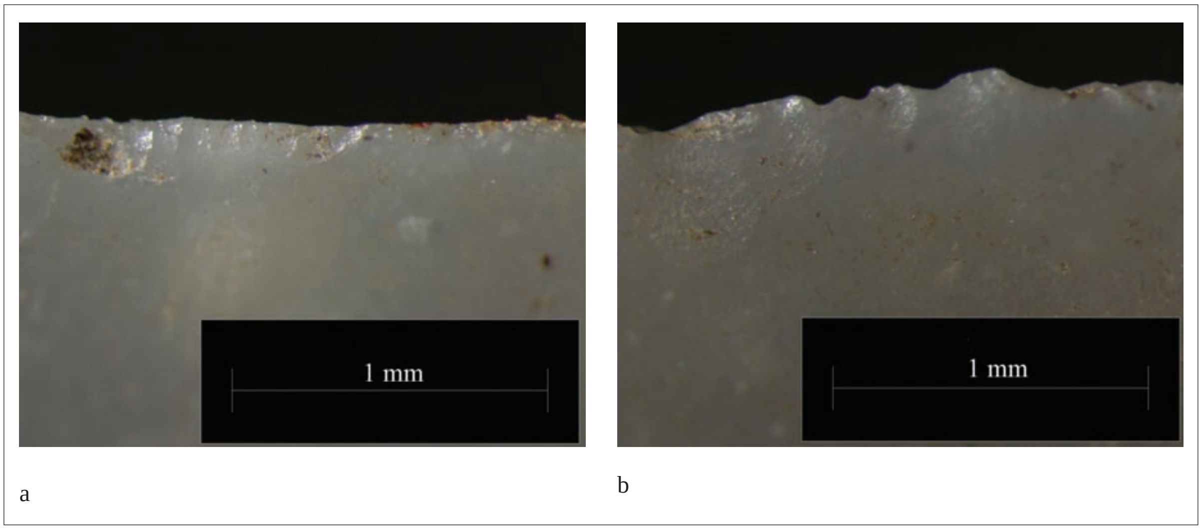


Fig. 6. A microlith from layer 1, area 3 of the Katra I settlement (artefact No 2868), magnified 25 times: a the front; b the reverse (photographs by G. Slah).

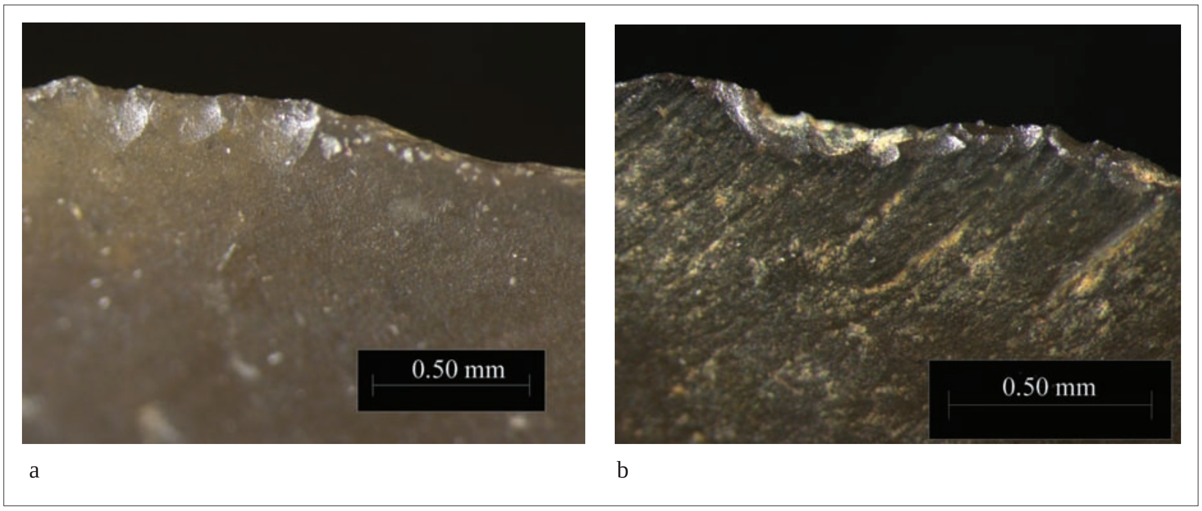
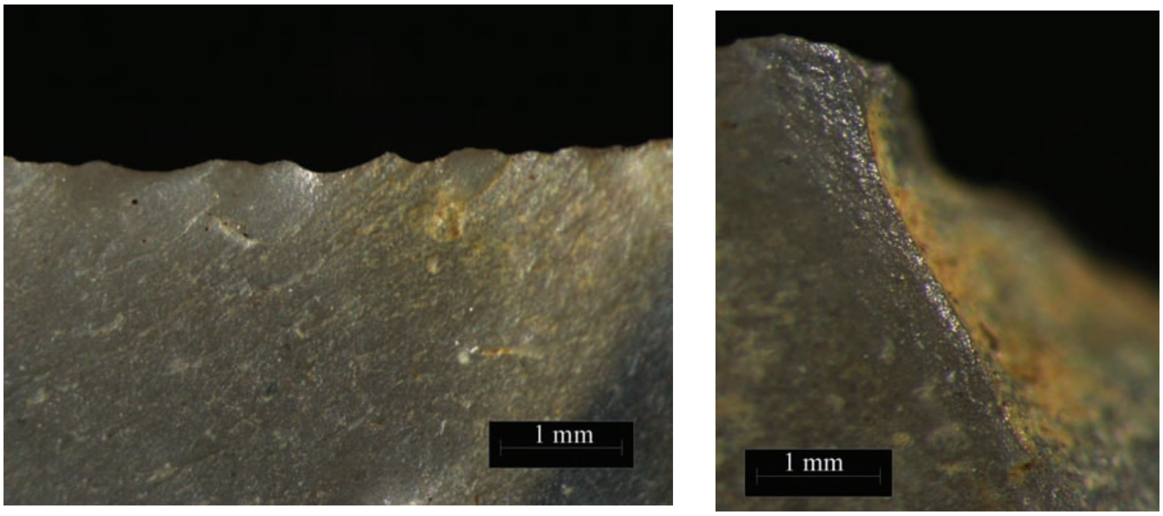


Fig. 7. A microlith from layer 2, area 3 of the Katra I settlement (artefact No 3027): a the reverse magnified 15 times; b the reverse magnified 30 times (photographs by G. Slah).



a b

Fig. 8. A microlith from layer 4, area 5 of the Katra I settlement (artefact No 5859), magnified 16 times: a the reverse; b the corner (photographs by G. Slah).

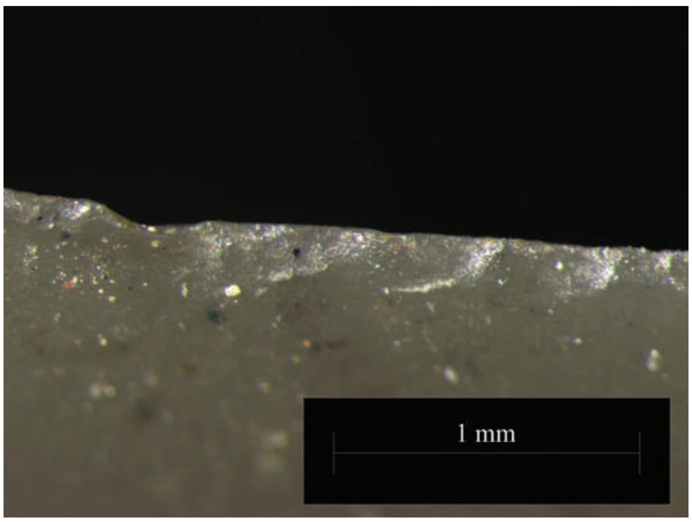
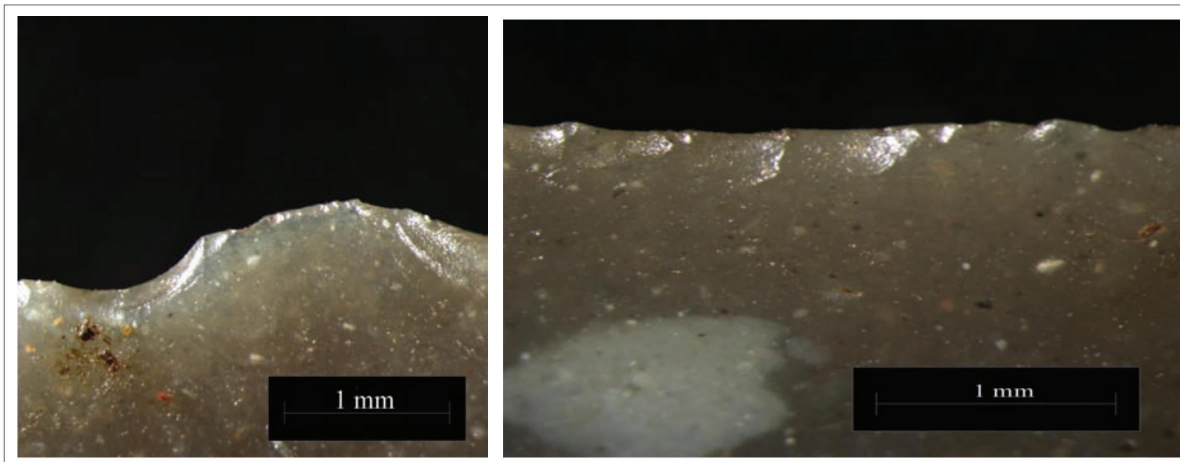


Fig. 9. A microlith from layer 1, area 6 of the Katra I settlement (artefact No 7561), magnified 16 times: the working edge (photograph by G. Slah).



a b

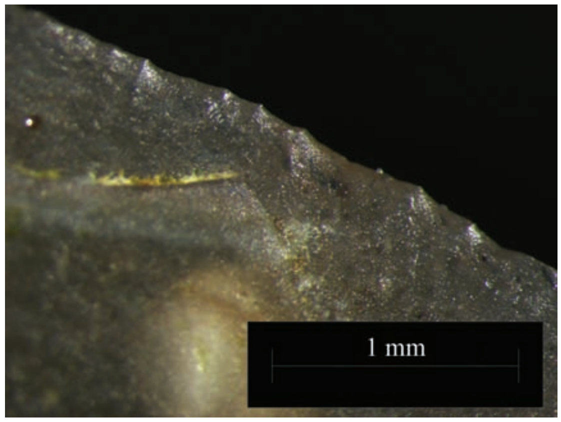
Fig. 10. A microlith from layer 6, area 6 of the Katra I settlement (artefact No 7824), the working edge: a magnified 25 times; b magnified 30 times (photographs by G. Slah).

a

b

c

Fig. 11. Experimental microliths: a embedded in a setting made from the branch of a bird-cherry tree; b embedded in a setting made from the branch of an ash tree; c embedded in a horn setting (photographs by G. Slah).



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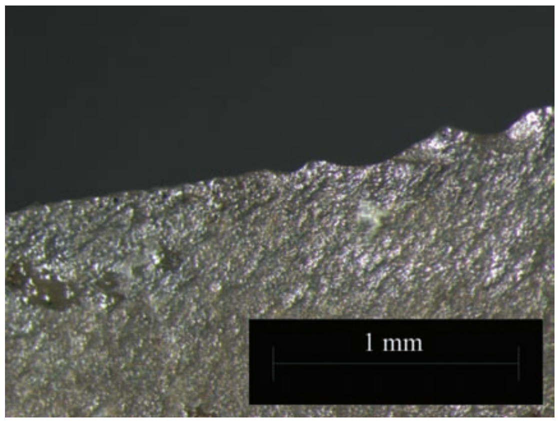

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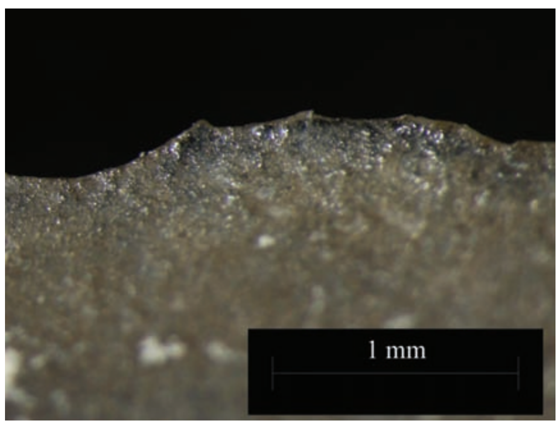
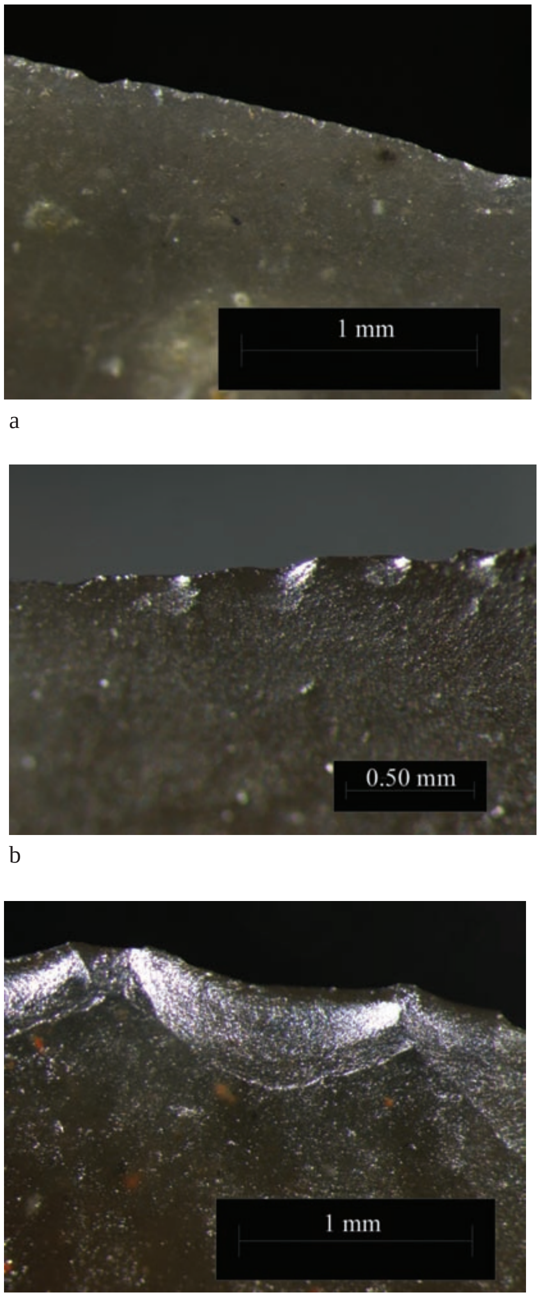


c

Fig.12. Experimental microliths: a from a wooden setting (bird-cherry), magnified 20 times, after being worked with for 17 minutes; b from a wooden (ash) setting, magnified 25 times, after being worked with for 17 minutes; c from a horn setting, magnified 25 times, after being worked with for 20 minutes (photographs by G. Slah).



a
b
c

Fig. 13. Experimental microliths: a from a wooden setting (bird cherry), magnified 25 times, after being worked with for 17 minutes; b from a wooden setting (ash), magnified 25 times, after being worked with for 17 minutes; c from a horn setting, magnified 25 times, after being worked with for 20 minutes (photographs by G. Slah).

Specimen No 5859 (Katra I settlement, area 5, layer 4): 22 millimetres long, 12 millimetres wide, three millimetres thick. The flint was dull grey, with no traces of retouch. The artefact was made from the middle part of the blade, when in the manufacturing process its upper and lower parts were truncated. After magnifying the artefact 16 times, polishing and regular chipped spots could be seen on the working edge of the bladelet. One of the chipped spots was deeper, and the surface of the chipped edge had a bright gloss (Fig. 8a, b).

Specimen No 7561 (Katra I settlement, area 6, layer 5): 37 millimetres long, six millimetres wide, two millimetres thick. The flint was grey, semi-clear, with no traces of retouch. The bulb of percussion was intact, and the upper part of the bladelet was truncated. One surface of the bladelet was covered with a dull white patina. After magnifying the microlith 25 times, polish, regular chipped spots, and a bright gloss could be detected on one edge of the bladelet (Fig. 9).

Specimen No 7824 (Katra I settlement, area 6, layer 5): 39 millimetres long, eight millimetres wide, 2.5 millimetres thick. The flint was grey, semi-clear, with no traces of retouch. One edge was totally blunt, formed at the moment of the flake breaking off. After magnifying the microlith 25 times, one edge of the bladelet featured polish, regular chipped spots, and a bright gloss (Fig. 10a, b).

Twenty-two microliths were made for the experiment (Fig.11a, b, c). Seven fell out of the setting in the process of the work. The characteristics of the remaining 15 were similar: micro-retouch formed on the edges of the bladelet (Fig. 12a, b, c). Traces of polish and a gloss could be seen on the chipped spots that formed in the process of the work (Fig. 13a, b, c). From a technical point of view, the experimental reed cutting and the reed cutting in the Katra I settlement were carried out in a similar way. All this proves that the communities of the Katra I settlement, who lived close to water, very frequently used sickles with embedded bladelets for cutting reeds.

Discussion

Rectangular bladelets intended for cutting aquatic herbaceous plants have frequently been considered as artefacts intended for agriculture: for cutting crops, or grass for hay. However, sickle bladelets intended for cutting crops or hay also had lines on one side which are difficult to detect without optical devices. What made the grooves? As is indicated in the traceological literature, rain had a large impact on the formation of the grooves: drops splashing on the ground would throw up fine grains of sand, which would stick to the stems of the grass. When cutting crops or grass, the sickle bladelets would rub against the sand, which formed grooves; and this never happened when cutting aquatic plants or plants in flood plains. This is the only way to distinguish the functions of typologically indistinguishable artefacts.

The embedded parts of the bladelets used in the experiment and in the Katra I settlement were almost always attached to a sickle by pitch or tar, and use wear could not be detected on them. The embedded part of the bladelet was stable and perpendicularly retouched, even though it touched the part of the sickle that was made of bent wood, jaw or horn. It has often been pointed out in specialist literature that use wear caused by rubbing remains on the embedded part. It might appear only in rare cases, where the bladelet has become loose before falling out, or due to contact with other objects before it was embedded in the sickle. In other cases, no use wear might appear. Moreover, in the analysis of cutting tools, including sickles with flint bladelets, the identification of use wear consisted of establishing the topography of the line and the polished surfaces. To specify the function of a manufactured item such as a spokeshave, seesaw or carving knife, first of all, the level of blade wear was analysed: the chipping, the character of the chipped spots, and the appearance of polished surfaces. To distinguish between tools intended for cutting aquatic herbaceous plants and for cutting grass, attention should be paid to the site of polished surfaces on the bladelets for grass cutting and the chips and the linear traces. When cutting grass or aquatic plants for longer than five minutes, almost regular use-wear forms on the embedded blades, and a gloss appears closer to the blades that recalls a seesaw form. However, linear traces are frequently found on blades used for cutting grass, caused by contact with small pieces of earth that stick to the stems of the grass after rain. No linear traces were detected on either the experimental bladelets or on the ones found in areas 5 and 6 of the Katra I settlement. Similar bladelets for cutting grass, as identified by the traceological method, were found in the Žeimenis I lake settlement in Lithuania (Girininkas 1997, pp.16-36; 2009, p.220). Transversal lines were detected on their sides, close to the edge of the blade. Since no linear traces were left, either on the blades found in the Katra I settlement or on the experimental blades, we can state that the bladelets found in the Katra I settlement were definitely not related to grass cutting; therefore, they could not be considered as tools intended for animal husbandry (haymaking). The artefacts were used for cutting aquatic plants, to use for roofing or for weaving baskets or footwear. These facts match the Late Mesolithic and Early Neolithic natural environment of the Katra I settlement in the Atlantic period, when the environs of lakes Duba-Pelesa and the banks of the River Katra, which was part of the Duba-Pelesa lake basin, had an abundant pre-lake herbaceous community, and the shores had much sedimentary organic matter (Kabailienė 2006, p.311). The grass vegetation was used by Late Mesolithic and Early Neolithic communities for their household needs.

Conclusions

The technique of manufacturing flint bladelets for experiments was identical (or very close) to that used by the communities of Mesolithic Nemunas and Early Neolithic Dubičiai cultures that resided in the Katra I settlement in the Middle Mesolithic and Early Neolithic periods. The use wear on the bladelet edges caused by their use was also identical on the experimental bladelets and on artefacts from the Katra I settlement.

The comparison of bladelets from the Katra I settlement and bladelets used for the experiment led us to the conclusion that the quadrangular bladelets from the Katra I settlement were used for cutting aquatic herbaceous plants, or common reeds (*Phragmites*). The community of the Katra I settlement could have used them for weaving household items, or they could have dried them for kindling.

The quadrangular flint bladelets found in areas 3, 5 and 6 of the Katra I settlement should not be classed as tools for animal husbandry.

Abbreviation

ATL – *Archeologiniai tyrinėjimai Lietuvoje* … Vilnius (Since 1967–)

References

Literature

ANTONIEWICZ, W., 1930. Czasy przedhistoryczne i wcesnodziejowe ziemi Wileńskiej. *In*: *Odbitka z księgi zbiorowej. Wilno i ziemia Wileńska.* Wilno, 3-23.

ANTONIEWICZ, W., 1931. Najdawniejsze kultury epoki kamienia. *In*: *Sprawozdania Polskiej Akademji Umiejętności, XXXVII,* 9, 30.

BRAZAITIS, Dž., 1998. Pyplių piliakalnio papėdės gyvenvietės. *Lietuvos archeologija*, 15, 87-106.

BUTRIMAS, A., 1980. Biržulio ež. apylinkių (Telšių raj.) akmens amžiaus gyvenviečių tyrinėjimai 1978 ir 1979 metais. *In*: *ATL 1978 ir 1979 metais*. Vilnius: Lietuvos TSR Mokslų Akademijos Lietuvos istorijos institutas, 3-6.

BUTRIMAS, A., 1986. Biržulio sąsmaukos stovyklavietės ir gyvenvietės tyrinėjimai ir ežero pakrančių žvalgymas. *In*:

ATL 1984 ir 1985 metais. Vilnius: Lietuvos TSR Mokslų Akademijos Lietuvos istorijos institutas, 3-5.

BUTRIMAS, A., 1988. Mezolito kapai Spigino saloje. *In: ATL 1986 ir 1987 metais*. Vilnius: Lietuvos istorijos institutas, 3-4.

GIRININKAS, A., 1997. Žeimenio ežero 1-oji gyvenvietė. *In*: *Kultūros paminklai*, 4, 16-36.

GIRININKAS, A., 1990. Tyrinėjimai prie Kretuono ežero. *In*: *ATL 1988 ir 1989 metais*. Vilnius: Lietuvos istorijos institutas, 9-15.

GIRININKAS, A. 2009. *Akmens amžius. Lietuvos archeologija*, 1. Vilnius.

GIRININKAS, A., 2011. *Baltų kultūros ištakos,* t. II. Klaipėda.

GLOGER, Z., 1903. *Dolinami rzek*. Warszawa.

JABLONSKYTĖ, R., 1952. Mezolit Litvy. *Kratkye soobshcheniia i issledovaniia material'noi kultury*, 42, 40-52.

JABLONSKYTĖ-RIMANTIENĖ, R. K., 1966. Periodizacia mezoliticheskikh ctoianok Litvy. *In*: *Materialy i issledovania po archeologii. U istokov drevnikh kultur. Epokha mezolita.* Moskva-Leningrad*,* 126, 75-87.

JUODAGALVIS, V., 1998. Glūko ežero 10-oji senovės gyvenvietė. *In*: *ATL 1996 ir 1997* metais. Vilnius: Lietuvos istorijos institutas, 17-21.

JUODAGALVIS, V., 2002. Glūkas 10 – epipaleolito stovykla ir neolito gyvenvietės prie Varėnės upės. *Lietuvos archeologija*, 23*,* 197-238.

KABAILIENĖ, M., 2006. *Gamtinės aplinkos raida Lietuvoje per 14000 metų*. Vilnius: Vilniaus universiteto leidykla.

KOZŁOWSKI, S.K., 1964. Uwagi o póznym paleolicie i mezolicie wschodniej części kotliny Sandomierskiej. *Archeologia Polski*, IX(2), 325-350.

KOZŁOWSKI, S.K., 1965. Z problematyki Polskiego mezolitu. *Archeologia Polski*, X(1), 151-177.

MAJEWSKI, E., 1910. Teoria człowieka i cywilizacji. Warszawa.

OSTRAUSKAS, T., 1992. Šaltaliūnės akmens amžiaus stovyklavietė-gyvenvietė. *In*: *ATL 1990 ir 1991 metais.* Vilnius: Alma litera, 1, 29-31.

OSTRAUSKAS T., 1994. Šaltaliūnės akmens amžiaus stovyklavietės-gyvenvietės tyrinėjimai. *In: ATL 1992 ir 1993 metais.* Vilnius: Diemedis, 20-23.

OSTRAUSKAS, T., 1996. Vakarų Lietuvos mezolitas. *Lietuvos archeologija*, 14, 192-212.

OSTRAUSKAS, T., 1998. *Lietuvos mezolito gyvenviečių periodizacija. Daktaro disertacijos santrauka*. Vilnius: Vilniaus universitetas.

OSTRAUSKAS, T., 1999a. Kabelių senovės gyvenvietė 2-oji. *Lietuvos Archeologija*, *16*, 31-66.

OSTRAUSKAS, T., 1999b. Pietų Lietuvos paleolitas ir mezolitas. *Lietuvos Archeologija*, 16, 7-18.

OSTRAUSKAS T., 2000a. Mesolithic Kunda Culture. A glimpse from Lithuania. *In: Muinasaja Teadus*, 8, 167-180.

OSTRAUSKAS T., 2000b. Kabeliai 2 Stone Age Site. *Archeologia Baltica*, 5, 51-82.

OSTRAUSKAS, T., BUTRIMAITĖ, D., 1994. Upėtų akmens amžiaus gyvenviečių tyrinėjimai. *In: ATL 1992 ir 1993 metais*. Vilnius: Diemedis, 23-25.

OSTRAUSKAS, T., BUTRIMAITĖ, D., BUTRIMAS, A., 1994. Akmens amžiaus paminklų žvalgymai Biržulio apyežeryje. *In: ATL 1992 ir 1993 metais.* Vilnius: Diemedis, 26-29.

OSTRAUSKAS, T., STEPONAITIS, V., 1996. Šaltaliūnės akmens amžiaus gyvenvietė. *In*: *ATL 1994 ir 1995* metais. Vilnius: Lietuvos istorijos institutas, 17-20.

PUZINAS, J., 1935. Poledyninio Lietuvos gyventojo kultūra. *Naujoji Romuva*. 12/13, 281-287.

RIMANTIENĖ, R.K., 1971. *Paleolit i mezolit Litvy.* Vilnius: Mokslas.

RIMANTIENĖ, R., 1973. Die Herkuft der mesolithischen Industrie in dem Bereiche des Neman (Nemunas)-Flussbassins. *In*: S.K. KOZLOWSKI, ed. *The Mesolithic in Europe*. Warsaw, 485-502.

RIMANTIENĖ, R., 1974. *Lietuvos archeologijos atlasas*, t. I. Vilnius: Mokslas.

RIMANTIENĖ, R.K., 1977. Osnovnye cherty mezolita Litvy. *Kratkie soobshcheniia instituta archeologii*, 149, 66-69.

SZUKIEWICZ, W., 1901a. Poszukiwania archeologiczne w powiatach Lidzkim i Trockim (gub. Wileńska). *Światowit*, III, 3-30.

SZUKIEWICZ, W., 1901b. *Szkice z archeologii przedhistorycznej Litwy. Część I-sza. Epoka kamienia w gub. Wileńskiej*. Wilno.

SZUKIEWICZ, W., 1907. Poszukiwania archeologiczne w powiecie Lidzkim gub. Wileńskiej. *In: Materiały Komisji antropolog.-archeolog. i etnogr. Akademii Umiejętnośći w Krakowie. Kraków.*

SZUKIEWICZ, W., 1910. Ślady epoki kamiennej w gub. Wileńskiej. *In: Kwartalnik Litewski*, I, 48-62.

ŠATAVIČIUS, E., 1992. Pasienių I mezolitinės stovyklavietės tyrinėjimai. *In*: *ATL 1990 ir 1991 metais.* Vilnius: Alma Litera, 34-36.

ŠATAVIČIUS, E., 1994a. Pasienių 1-osios akmens amžiaus gyvenvietės tyrinėjimai. *In*: *ATL 1992 ir 1993 metais.* Vilnius: Diemedis, 34-36.

ŠATAVIČIUS, E., 1994b. Akademiškumo link. *Baltų archeologija,* 2, 25-29.

ŠATAVIČIUS, E., 1996a. Vilniaus rajono akmens amžiaus paminklų tyrinėjimai. *In*: ATL *1994 ir 1995 metais.* Vilnius: Lietuvos istorijos institutas, 26-29.

ŠATAVIČIAUS, E., 1996b. Akmens amžiaus gyvenviečių tyrinėjimai Žeimenos baseine. *In: ATL 1994 ir 1995 metais*. Vilnius: Lietuvos istorijos institutas, 30-34.

ŠATAVIČIUS, E., 1997. Vėlyvoji Svidrų kultūra. *In*: *Kultūros paminklai*, 4, 3-15.

ŠATAVIČIAUS, E., 1998a. Pasienių 1-osios akmens amžiaus gyvenvietės tyrinėjimai. *In*: *ATL 1996 ir 1997 metais*. Vilnius: Lietuvos istorijos institutas, 41-43.

ŠATAVIČIAUS, E., 1998b. Rėkučių 1-osios akmens amžiaus gyvenvietės tyrinėjimai. *ATL 1996 ir 1997 metais*. Vilnius: Lietuvos istorijos institutas, 43-45.

ŠATAVIČIAUS, E., 1998c. Sudotos archeologijos paminklų komplekaso tyrinėjimai 1996-1997 metais *In: ATL 1996 ir 1997 metais.* Vilnius: Lietuvos istorijos institutas, 45-50.

ŠATAVIČIUS, E., 2005. Lietuvos vėlyvojo paleolito kultūrų periodizacija. *Archaeologia Lituana*, 6, 49-82.

WIĘCKOWSKA, H., 1964a. *Mezolit. Materialy do prahistorii ziem polskich I. Paleolit i mezolit.* Warszawa.

WIĘCKOWSKA, H., 1964b. Problema mezolitu na Mazowszu. *Archeologia Polski*, IX.1, 30-38.

WIĘCKOWSKA, H., MARCZAK, M., 1965. Próba podzialu kulturowego mezolitu Mazowsza. *In: Referat na II Konferencji poświęconej problematyce prahistorii plejstocenu* i *wczesnego holocenu Polski.* Warszawa.

WIĘCKOWSKA, H., MARCZAK, M., 1967. Próba podzialu kulturowego mezolitu Mazowsza. *In*: *Materialy do prahistorii plejstocenu i wczesnego holocenu Polski*. Warszawa.

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STAČIAKAMPIŲ AŠMENĖLIŲ, APTIKTŲ KATROS 1-OJOJE GYVENVIETĖJE (VARĖNOS R.), FUNKCINĖ ANALIZĖ

GVIDAS SLAH

Santrauka

Peržvelgus Katros 1-osios gyvenvietės archeologinę medžiagą, teko susidurti su dideliu kiekiu įvairių tipų mikrolitų. Dažnas akmens amžiaus – mezolito ar neolito laikotarpių – archeologinis paminklas turi didelį kiekį mikrolitų. Mikrolitai iki šiol tipologiškai skirstomi pagal formas, pvz., trapecijos formos, stačiakampiai, lancetai, rombo, segmento formos ir pan. Kalbant apie jų paskirtį, dažniausiai jie interpretuojami kaip strėlių, žeberklų antgalių ašmenėliai. Retai kada būna įvardyta kita jų paskirtis.

Atsižvelgus į tai, kad randama daugybė mikrolitų, jų paskirtis turėjo būti įvairesnė. Jų paskirtį gali padėti atskleisti tik trasologiniai tyrimai ir eksperimentai. Buvo atliktas bandymas su įtvertais ašmenėliais – pjautos nendrės (*Phragmites*), kurios galėjo būti naudojamos stogams dengti, namų apyvokos daiktams, apavui pinti. Mikrolitai buvo įtveriami į raginį ir du medinius kotus. Įtvirtinant titnaginius ašmenėlius buvo naudojama derva, kurios gamybos technologija žinoma nuo akmens amžiaus. Augalai buvo pjaunami 17–20 min. Per tiek laiko ant mikrolitinių ašmenėlių paviršiaus liko darbo žymių. Atlikus eksperimentą naudojant mikroskopą pastebėta, kad po šio darbo ant darbui skirtų ašmenėlių lieka smulkus utilizacinis mikroretušas su apšlifuotomis blizgiomis briaunomis. Blizgesį suteikė sąlytis su minkšta ar pusiau kieta augalų medžiaga. Gauti eksperimento duomenys buvo palyginti su Katros 1-ojoje gyvenvietėje rastais mikrolitais. Paaiškėjo, kad mezolito ir neolito laikotarpiais Pietų Lietuvoje gyvenusios bendruomenės analogiškus pjautuvus su įstatytais stačiakampiais ašmenėliais-mikrolitais naudojusios ir augalams pjauti, eksperimento metu nustatyta tokių pat ar labai panašių požymių.

Šiuo eksperimentu įrodyta, kad iki šiol taikyta mikrolitų tipologija ir paskirtis gali keistis. Tam reikia nuodugnesnių tyrimų ir bandymų, bet šiuo atveju pasiektas rezultatas taip pat suteikia nemažai informacijos apie patį dirbinį. Be abejonės, mikrolitai iš Katros 1-osios gyvenvietės 3, 5, 6 sluoksnių, kurie mikroskopu buvo apžiūrėti, buvo naudoti ne gamybinio ūkininkavimo darbams: javams, žolei pjauti, o namų ūkio poreikiams: nendrėms namo stogui paruošti, namų apyvokos daiktams, apavui pinti, prakurai.